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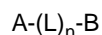
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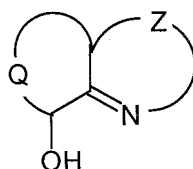
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(54) **Lithographic printing plates comprising bi-functional compounds.**

(57) A heat-sensitive lithographic printing plate precursor comprising on a grained and anodized aluminum support a compound which is capable of converting from a hydrophobic state to a hydrophilic state or vice versa upon exposure to heat, and is represented by the following formula:



wherein L represents a linking group, n represents 0 or 1 and B represents a thermo-labile group; characterized in that the compound further comprises the group A which is a functional group capable of interacting with the surface of a grained and anodized aluminum support and is selected from the list consisting of a halosilanyl group, an alkoxysilanyl group, a phosphonic acid group or a salt thereof, a phosphoric acid group or a salt thereof, a salicylic acid group or a salt thereof, a boronic acid group or an ester or a salt thereof, an optionally substituted di or tri-hydroxyaryl group, an optionally substituted salicaldoxime group, an optionally substituted salicaldimine group, an optionally substituted hydroxyheteroaryl group, an amidine group, a 1,3-dicarbonyl group or a group represented by the formula (i)



(i)

wherein Q and Z independently represent the necessary atoms to form an optionally substituted five or six membered aromatic or heteroaromatic ring.



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A,D	EP 1 225 041 A (EASTMAN KODAK COMPANY) 24 July 2002 (2002-07-24) * abstract * * paragraph [0032] - paragraph [0071] * -----	1-7,11, 13	INV. B41C1/10
A,D	EP 1 235 105 A (FUJI PHOTO FILM CO., LTD) 28 August 2002 (2002-08-28) * abstract * * paragraph [0011] - paragraph [0046] * -----	1-7,11, 13	
A	EP 0 990 516 A (KODAK POLYCHROME GRAPHICS LLC) 5 April 2000 (2000-04-05) * abstract * * paragraph [0027] - paragraph [0047] * -----	1-7,11, 13	
A,D	EP 0 652 483 A (MINNESOTA MINING AND MANUFACTURING COMPANY) 10 May 1995 (1995-05-10) * abstract * * page 2, line 54 - page 5, line 20 * -----	1-7,11, 13	
			TECHNICAL FIELDS SEARCHED (IPC)
			B41C
-The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
Munich		25 July 2007	Vogel, Thomas
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

6 EPO FORM 1503 03.82 (P04C01)

**CLAIMS INCURRING FEES**

The present European patent application comprised at the time of filing more than ten claims.

- Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

**LACK OF UNITY OF INVENTION**

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-7, 11, 13



The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-7,11,13

A heat-sensitive lithographic printing plate precursor comprising on a grained and anodized aluminum support a compound which is capable of converting from a hydrophobic state to a hydrophilic state or vice versa upon exposure to heat and/or in the presence of an acid or a base, the compound being represented by the formula in claim 1 (claim 1), a method of making a lithographic printing plate using said precursor (claim 11) and a lithographic printing method using said plate precursor (claim 13).

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2. claims: 8,9,10,12,14

A compound which is capable of converting from a hydrophobic state to a hydrophilic state upon exposure to heat and which is represented by the formula in claim 8 (claim 8), a heat-sensitive printing plate precursor comprising said compound (claim 10), a method of making a lithographic printing plate using said precursor (claim 12) and a lithographic printing method using said plate precursor (claim 14).

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 06 12 1704

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on  
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25-07-2007

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1225041 A	24-07-2002	JP 2002311572 A	23-10-2002
		US 2002142245 A1	03-10-2002
-----			
EP 1235105 A	28-08-2002	JP 2002240450 A	28-08-2002
		US 2002142247 A1	03-10-2002
-----			
EP 0990516 A	05-04-2000	DE 69908269 D1	03-07-2003
		DE 69908269 T2	25-03-2004
		JP 2000103179 A	11-04-2000
-----			
EP 0652483 A	10-05-1995	CN 1117921 A	06-03-1996
		DE 69410212 D1	18-06-1998
		DE 69410212 T2	24-09-1998
		JP 7186562 A	25-07-1995
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82